REMARKS

Applicants respectfully request further examination and reconsideration in view of the instant response. Claims 1-22 remain pending in the case. Claims 1-22 stand rejected.

35 U.S.C. § 102(b) – Claims 1, 3, 18 and 19

The instant Office Action states that Claims 1, 3, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,793,608 by Winick et al., hereinafter referred to as "Winick." Applicants have reviewed Winick and respectfully submit that the embodiments of the present invention as recited in Claims 1, 3, 18 and 19 are not anticipated by Winick for at least the following rationale.

Applicants respectfully direct the Examiner to independent Claim 1 that recites that an embodiment of the present invention is directed to (emphasis added):

> A fan cooling system with high availability comprising:
> a first fan coupled with a first motor for creating a first air flow;
> a second fan coupled with a second motor for creating a second air flow;
> a duct system for conveying said first air flow and said second air flow to at least one heat sink; and
> a control system coupled with said first fan motor and said second fan motor.

Independent Claim 18 recites a similar embodiment. Furthermore, Claim 3 that depends from independent Claim 1 and Claim 19 that depends from independent Claim 18 also include these embodiments.

MPEP §2131 provides:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). ... "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim.

Applicants respectfully submit that Winick does not teach or suggest each element of the claimed embodiments in the manner set forth in independent Claims 1 and 18. In particular, Applicants respectfully submit that Winick does not teach, describe or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1, and the similar embodiment of independent Claim 18.

With reference to FIG. 1, Applicants understand Winick to disclose a cooling system including fans 46 within an enclosure 11. Moreover, Winick recites that "[a]n enlarged plenum 24 or input-output section is created within the enclosure 11" (col. 3, lines 3-5). In particular, Applicants respectfully submit that Winick does not teach, describe or suggest that the air flow generated by both fans 46 is conveyed

over any of heats sinks 38, 39 or 43. In contrast, Applicants understand that the air flow generated by a single fan 46 is conveyed over heat sinks 38, 39 or 43.

Moreover, Applicants respectfully submit that plenum 24 is not equivalent to the claimed duct system. In particular, plenum 24 does not "convey" air flow over heats sinks 38, 39 or 43, as recited in Claim 1. Furthermore, plenum 24 does not "guide" air flow over heats sinks 38, 39 or 43, as recited in Claim 18. Therefore, Applicants respectfully submit that plenum 24 does not anticipate the claimed "duct system" of Claim 1 or the claimed "duct to guide" of Claim 18.

Applicant respectfully submits that Winick does not show the identical invention in as complete detail as contained in the claim, and that the elements of Winick are not arranged as required by the claims. Therefore, Applicant respectfully submits that Winick does not satisfy a *prima facie* case of anticipation of Claims 1 and 18.

Accordingly, Applicant respectfully asserts that Winick does anticipate the claimed embodiments of the present invention as recited in independent Claims 1 and 18, that these claims overcome the rejection under 35 U.S.C. § 102(b), and that these claims are thus in a condition for allowance. Therefore, Applicant respectfully submits that Winick also does not anticipate the additional claimed features of the present invention as recited in Claim 3 that depends from independent Claim 1 and Claim 19 that depends from independent Claim 18 also

overcome the rejection under 35 U.S.C. § 102(b), and are in a condition for allowance as being dependent on an allowable base claim.

35 U.S.C. §103(a) - Claims 2 and 11

The instant Office Action states that Claims 2 and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Winick in view of United States Patent 6,299,408 by Bhatia et al., hereinafter referred to as "Bhatia." Applicants have reviewed the Winick and Bhatia and respectfully submit that the embodiments of the present invention as recited in Claims 2 and 11 are patentable over the combination of Winick and Bhatia for at least the following rationale.

Claim 2 is dependent on independent Claim 1 and includes the recitations of independent Claim 1. Hence, by demonstrating that independent Claim 1 is patentable over Winick and Bhatia, it is also demonstrated that Winick and Bhatia do not show or suggest the embodiments of Claim 2.

"As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries" including "[a]scertaining the differences between the claimed invention and the prior art" (MPEP 2141(II)). "In determining the differences between the prior art and the claims, the question

under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious" (emphasis in original; MPEP 2141.02(I)). Applicants note that "[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art" (emphasis added; MPEP 2141(III)).

First, as presented above, Applicants respectfully submit that Winick does not teach, describe or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1. For the same rationale, Applicants respectfully submit that Winick does not teach, describe or suggest "a ducting system for conveying air flow from each of said fans to a heat dissipating device" (emphasis added) as recited in independent Claim 11.

Second, as presented above, Applicants respectfully submit that the plenum of Winick is not equivalent to the claimed "duct system" recited in independent Claim 1. Therefore, for the same rationale, Applicants respectfully submit that the plenum of Winick is not equivalent to the claimed "ducting system" recited in independent Claim 11.

Third, Applicants respectfully note that "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (emphasis in original; MPEP 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)).

With reference to FIG. 1, Applicants understand Winick to disclose that each fan 46 directed air over different electronic components. Specifically, FIG. 1 includes arrows that appear to indicate the direction of airflow. In particular, these arrows appear to indicate that each fan 46 directs air over distinct and different electronic components. Moreover, due to the placement of fans 46 and the electronic components, Applicants respectfully submit that Winick teaches away from directing the air flow from both fans 46 over the same electronic components.

Fourth, Applicants respectfully submit that Bhatia does not overcome the shortcomings of Winick. Applicants respectfully submit that Bhatia, alone or in combination with Winick, does not show or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1 or "a ducting system for conveying air flow from each of said fans to a heat dissipating device" (emphasis added) as recited in independent Claim 11.

Fifth, Applicants respectfully submit that Bhatia does not teach that which it is purported to teach. With reference to FIG. 8, Applicants understand Bhatia to disclose that "the blade driving mechanism is a flexible shaft 805. Such a flexible shaft also permits variation of the angle between the motor 210 and the blade portion 710" (emphasis added; col. 6, lines 12-14). Applicants respectfully submit that Bhatia does not teach, describe or suggest that motor 210 is removably coupleable with blade portion 710, as asserted. Specifically, Applicants respectfully submit that Bhatia does not teach, describe or suggest "said first motor and said second motor are removably coupleable with said fan cooling system" (emphasis added) as recited in Claim 2 or "a plurality of variable-speed fan motors removably coupleable with said redundant fan cooling system" (emphasis added) as recited in Claim 11.

Accordingly, Applicant respectfully asserts that the claimed embodiments of the present invention as recited in independent Claims 1 and 11 are patentable over the combination of Winick and Bhatia, that these claims overcome the rejection under 35 U.S.C. § 103(a), and that these claims are thus in a condition for allowance. Therefore, Applicant respectfully submits that Claim 2 that depends from independent Claim 1 is also patentable over the combination of Winick and Bhatia, that this claim also overcomes the rejection under 35 U.S.C. § 103(a), and is in a condition for allowance as being dependent on an allowable base claim.

35 U.S.C. §103(a) - Claims 1-9, 11-16 and 18-22

The instant Office Action states that Claims 1-9, 11-16 and 18-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent 5,414,591 by Kimura et al., hereinafter referred to as "Kimura," in view of United States Patent 6,791,836 by Cipolla et al., hereinafter referred to as the "Cipolla." Applicants have reviewed Kimura and Cipolla and respectfully submit that the embodiments of the present invention as recited in Claims 1-9, 11-16 and 18-22 are patentable over the combination of Kimura and Cipolla for at least the following rationale.

Applicants respectfully assert that the combination of Kimura and Cipolla does not teach, describe or suggest the invention as claimed because the combination of the Kimura and Cipolla does not satisfy the requirements of a *prima facie* case of obviousness.

First, Applicants respectfully submit that Kimura does not teach, describe or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1, and similar recitations of independent Claims 11 and 18. With reference to FIG. 4, Kimura recites "[o]ne casing 9 contains three magnetic disk drives 1, and partitions 10 for forming ducts are provided between the magnetic disk drives 1. Each duct is formed with an inlet 11 and an outlet 12 of cooling air, and a blower fan 13, which is one example of blast means, is provided in the inlet 11" (col. 5,

lines 9-14). Specifically, "[s]upposing that all the fans 13a, 13b are normally functioning now, pressures of cooling air flows 15 passing the magnetic disk drives 1a, 1b will have a uniform distribution from the inlet 11a to the outlet 12a. Therefore, even if the ducts 10 include the openings 14, the cooling air flows 15 will not leak from the adjacent magnetic disk drives 1 by way of these openings 14. For this reason, when all the fans 13 are normally rotating, the above-described structure of the casing 9 enables cooling of the magnetic disk drives 1 to be conducted effectively without causing troubles, thereby suppressing their temperature rises" (emphasis added; col. 5, lines 23-34).

Therefore, Applicants respectfully submit that Kimura does not teach, describe or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis added) as recited in independent Claim 1, and similar recitations of independent Claims 11 and 18. Moreover, by disclosing that air flows do not leak between adjacent disk drives during normal functions, Applicants respectfully submit that Kimura teaches away from the claimed embodiment.

Second, Applicants respectfully submit that Cipolla does not overcome the shortcomings of Kimura. Applicants respectfully submit that Cipolla, alone or in combination with Kimura, does not show or suggest "a duct system for conveying said first air flow and said second air flow to at least one heat sink" (emphasis

added) as recited in independent Claim 1, and the similar embodiments of independent Claims 11 and 18.

Third, Applicants respectfully note that "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (emphasis in original; MPEP 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)). Moreover, Applicants note that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious" (emphasis added) (MPEP 2143.01; *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)). Moreover, "[i]f the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed amendment" (emphasis added) (MPEP 2143.01; *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Applicants understand Kimura to disclose "[a] magnetic disk storage system in which magnetic disk drives can be cooled effectively, and even if a blast device for one of [the] magnetic disk drives fall into trouble or cease operation, a temperature rise of this magnetic disk drive can be suppressed to the minimum. For this purpose, in the magnetic disk storage system containing a plurality of magnetic disk drives, [blast] devices [are] provided for each of the disk drives, and the disk drives are separated by partitions in which openings are

formed so that the cooling air can be passed between adjacent magnetic disk drives" (Abstract). Specifically, Applicants understand Kimura to teach that in the event of the failure of a blast device, e.g. a fan, the corresponding magnetic disk drive can still receive some cooling air through an opening in a partition to separating an adjacent disk drive.

In particular, Applicants respectfully submit that the magnetic disk storage system of Kimura includes blast devices that are not independently controllable. Kimura specifically discloses a system in which failure of a blast device is compensated for, to some extent, by providing openings in partitions separating adjacent magnetic disk drives. Moreover, the system of Kimura does not require detection of the failure by a processing device. Rather, the supplemental cooling is provided based on the pressure of the airflow, in that the pressure is lower on the side of the partition associated with the failed blast device, allowing air to pass through the opening from an adjacent fan (see col. 5, lines 35-61). Indeed, Applicants respectfully submit that intended purpose of Kimura is to provide the supplemental cooling passively. In other words, Applicants submit that the principle of operation of Kimura is to provide passive supplemental cooling in the event of a blast device failure.

Applicants note that while an embodiment of Kimura does provide a detector for detecting the operational condition of a fan, this detection is only used for informing a user of a failed fan for replacement. In particular, as shown

in Figure 26, signal line 22 only provides signal transmission in one direction, from detector 21 to control circuit 23 for providing some type of output signal (col. 14, lines 45-62).

In contrast, Applicants understand Cipolla to disclose a fan module including two or more individual fans and a processor for controlling the two or more individual fans (Abstract). With reference to Figure 4 of Cipolla, "[p]referably, the processor 116 controls the speed of each fan 102 when the temperature detected falls below a predetermined temperature set point. However, the processor 116 can also control the fans 102 based upon a predetermined relationship between the fan speed and temperature" (col. 5, lines 1-5). Applicants understand Cipolla to teach that processor 116 can control the speed of each fan independently, based on a current state of the operating environment in which a particular fan 102 is located. In particular, Applicants respectfully submit that intended purpose of Cipolla is to provide a fan module in which the individual fans can be controlled based on the operating environment. In other words, Applicants submit that the principle of operation of Cipolla is to provide active control of the fans, and thus the operating environment in which the fans are operational.

Applicants respectfully submit that modifying Kimura in the manner suggested by the Examiner would render Kimura inoperable for its intended purpose. For instance, Kimura discloses a system in which fan failures are

passively accounted for by providing openings in partitions separating adjacent magnetic disk drives. In contrast, Cipolla discloses a fan module for actively controlling individual fans based on operating conditions.

As recited above, "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention" (emphasis in original; MPEP 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)). Applicants respectfully submit that by modifying Kimura in the manner suggested in the instant Office Action, the passive control of the fans would be eliminated, thus rendering Kimura inoperable for its intended purpose.

Fourth, Applicants respectfully submit that "said first motor and said second motor are removably coupleable with said fan cooling system" (emphasis added) as recited in Claim 2 or "a plurality of variable-speed fan motors removably coupleable with said redundant fan cooling system" (emphasis added) as recited in Claim 11, are subject to legal precedent as the source of supporting rationale under MPEP § 2144.04. MPEP § 2144.04 recites in part "[a]s discussed in MPEP § 2144, if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court" (emphasis added; MPEP § 2144.04)

Applicants respectfully submit that the cited passage of MPEP § 2144.04(V)(C), directed toward a lipstick holder with a removable cap, is not sufficiently similar to those in the instant application. Specifically, the facts of *In re Dulberg*, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961), as recited in MPEP § 2144.04(V)(C), are as follows: "The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is 'press fitted' and therefore not manually removable. The court held that 'if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.'" (emphasis added). Applicants respectfully submit that the facts if *In re Dulberg*, the desirability of obtaining access to the end of a lipstick holder, are not sufficiently similar to those of the instant application. Therefore, Applicants respectfully submit it would not have been "obvious to one of ordinary skill in the art at the time of the invention to make the motor removable from the fan cooling system", as asserted.

In view of the combination of Kimura in view of Cipolla not satisfying the requirements of a *prima facie* case of obviousness, Applicants respectfully submit that independent Claims 1, 11 and 18 overcome the rejection under 35 U.S.C. § 103(a), and that these claims are thus in a condition for allowance. Applicants respectfully submit the combination of Kimura in view of Cipolla also does not teach or suggest the additional claimed features of the present invention as recited in Claims 2-9 that depend from independent Claim 1, Claims

12-16 that depend from independent Claim 11, and Claims 19-22 that depend from independent Claim 18. Therefore, Applicants respectfully submit that Claims 2-9, 12-16 and 19-22 also overcome the rejection under 35 U.S.C. § 103(a), and are in a condition for allowance as being dependent on an allowable base claim.

35 U.S.C. §103(a) - Claims 10 and 17

The instant Office Action states that Claims 10 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kimura, in view of Cipolla, further in view of United States Patent Application Publication 2003/0112600 by Olarig, et al., hereinafter referred to as the "Olarig" reference. Claim 10 is dependent on Independent Claim 1 and Claim 17 is dependent on Independent Claim 11. Applicants have reviewed Kimura , Cipolla and Olarig and respectfully submit that the embodiments of the present invention as recited in Claims 10 and 17 are patentable over the combination of Kimura , Cipolla and Olarig for at least the following rationale.

Claim 10 is dependent on independent Claim 1 and includes the recitations of independent Claim 1 and Claim 17 is dependent on independent Claim 11 and includes the recitations of independent Claim 11. Hence, by demonstrating that independent Claims 1 and 11 are patentable over Kimura , Cipolla and Olarig, it is also demonstrated that Kimura , Cipolla and Olarig do not show or suggest the embodiments of Claims 10 and 17.

Applicants respectfully assert that the combination of Kimura , Cipolla and Olarig rig does not teach, describe or suggest the invention as claimed because the combination of the Kimura , Cipolla and Olarig does not satisfy the requirements of a *prima facie* case of obviousness. So as to not unnecessarily duplicate arguments, Applicants respectfully direct the Examiner to the remarks accompanying the discussion of the rejection of Claims 1-9, 11-16 and 18-22 above for a detailed argument as to the lack of a *prima facie* case of obviousness. Moreover, Applicants respectfully submit that Olarig does not overcome the shortcomings of Cipolla and Kimura in providing supporting a *prima facie* case of obviousness.

In view of the combination of Kimura in view of Cipolla, further in view of Olarig, not satisfying the requirements of a *prima facie* case of obviousness, Applicants respectfully submit that independent Claims 1 and 11 overcome the rejection under 35 U.S.C. § 103(a), and that these claims are thus in a condition for allowance. Applicants respectfully submit the combination of Kimura in view of Cipolla, further in view of Olarig, also does not teach or suggest the additional claimed features of the present invention as recited in Claim 10 that depends from independent Claim 1 and Claim 17 that depends from independent Claim 11. Therefore, Applicants respectfully submit that Claims 10 and 17 also overcome the rejection under 35 U.S.C. § 103(a), and are in a condition for allowance as being dependent on an allowable base claim.

CONCLUSION

Based on the arguments presented above, Applicants respectfully assert that Claims 1-22 overcome the rejections of record and, therefore, Applicants respectfully solicit allowance of these Claims.

Respectfully submitted,

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